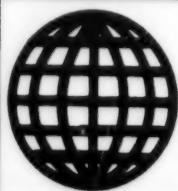


JPRS-EST-94-012

10 June 1994



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JPRS Report

Science & Technology

***Europe
Luxembourg PTT 1992 Management Report***

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CONTENTS

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92WS0270A Luxembourg PTT Luxembourg 1992 Management Report in French 16 Jul 93

[75-page 1992 Annual Report from the Luxembourg PTT]

Foreword	1
Telecommunications	2
I. Telecommunications Infrastructure	2
II. Telecommunications Services	3
Logistics	6
I. Regulation	6
II. Personnel	7
III. Materiel and Buildings	7
IV. Data Services	8
V. Postal Services Garage	8
VI. Public Relations	8
1992 Revenues	9
Table 16. Radio Communications: Non-Public Radio Engineering Stations	11
ISDN (Integrated Services Digital Network)	12
EURIE 93: The European ISDN Event	12
Direct Link Communications	12
Leased Lines	12
Installation and Service Initiation	13

LUXEMBOURG PTT 1992 Management Report
*94WS0270A Luxembourg PTT LUXEMBOURG 1992
MANAGEMENT REPORT in French 16 Jul 93 pp 1-75*

[75-page 1992 Annual Report from the Luxembourg PTT]

[Excerpt]

Foreword

For the first time, the turnover of the Postal and Telecommunications Services has exceeded the 10-billion-franc threshold, coming in at 10.35 billion [Luxembourg] francs [LuxF], by including projected revenues for paying out returns on funds on deposit with the government, representing the assets of private third parties with postal checking accounts.

If one takes into account the drop in revenues owing to the decline in telex use and the reduction in international telephone rates, which went into effect on 1 March 1992, it can be considered that the growth in gross revenues from telecommunications (LuxF7.4 billion, representing an increase of 5.7 percent) is very favorable within a rather depressed economic context, while postal [account] revenues leveled out of LuxF2.2 billion.

Operating expenses increased by 7 percent, reaching LuxF4.1 billion including, as in years past, the total amount of expenses for retirement pensions. Payments to foreign administrative bodies, subject to the exchange rate hazards of international accounts, may increase by 28.4 percent, attaining a sum of LuxF1.7 billion.

Subject to these conditions, the cashflow generated by the present exploitation of postal services, of postal financial services, and of telecommunications services, is set at LuxF4.3 billion. The 2.2-percent drop, relative to the preceding year, has no profound significance, for the reasons cited above. This cashflow level made it possible to finance the investment program which, at LuxF2.7 billion (+16.2 percent, has just broken all previous records.

In order to insure the transition of budget accounting to commercial accounting by 1 January 1993, for determining allocations for depreciation, the reassessment of the property of the new Postal and Telecommunications Services Enterprise by independent experts, within the context of establishing an opening balance, was taken into account. In terms of this reassessment, the allocation for depreciation may go from LuxF765.7 million to LuxF1.848 billion, such that the surplus, to be considered as a pre-tax profit beginning in fiscal year 1993, is being reduced to LuxF2.5 billion.

With regard to the lag in telephone connections, accumulated over the last few years, significant progress has been made during fiscal year 1992. While the number of requests for new telephone connections again increased by 3.7 percent to attain a figure of 17,677, the waiting list

for new service connections not feasible owing to technical reasons was reduced by 25 percent to 2,347 units in late 1992.

The noteworthy event in 1992 was surely the vote, on 9 July 1992, on the part of the Chamber of Deputies, on the draft law to amend the status of the Postal and Telecommunications Services Administration. This law, dated 10 August 1992, sets up the new "Postal and Telecommunications Services Enterprise," a public establishment having a legal character and enjoying financial and administrative autonomy. This law went into effect on 1 September 1992, the Enterprise thus functioning once again within the framework defined by the law regarding the State revenues budget and expenses for 1992. The Enterprise has been enjoying financial autonomy since 1 January 1993.

This reform, while according the new entity the freedoms to act which it shall require, at the same time fulfills the separation of regulatory and operational functions required by European directives, in light of the liberalization of postal and telecommunications services. Thus, these services continue to be regulated by the laws of 4 May 1877 and 20 February 1884, respectively, anticipating amendment of those laws, in conformity with European directives currently being drafted.

In that context, it ought be mentioned that the Commission published a "Green Book Concerning the Development of a Single Market for Postal Services," dated 11 June 1992, as well as a new "Report Concerning the Status of the Telecommunications Services Sector," dated 21 October 1992. In the meantime, the session of the Council of Telecommunications Ministers, which took place in Luxembourg on 16 June 1993, has given the go-ahead for liberalizing the complement of public telephone services, slated for 1 January 1998 at the latest.

Now, it shall be up to the Enterprise's new managerial echelon and the entire personnel staff to again take up the challenge of competition while safeguarding the interests of a quality public service accessible to all.

Luxembourg, 16 July 1993

[signed]

Edmond Toussing, General Manager

In 1991, the rapid increase of requests for connection to the telecommunications network, infeasible owing to the lack of available lines in local networks, was the major discernible problem. During fiscal year 1992, the measures brought on line were intensified and quickly bore fruit. Thus, the number of requests pending was reduced by about 25 percent, leveling out at 2,300 at year's end.

When one deducts from this figure the underground connections that are pending, because the corresponding building construction is not yet completed at the end of 1992, one arrives at a figure of 1,703 requests not

honored owing to a paucity of available lines. It follows that, during 1993, the effort should be maintained within these bounds.

As regards requests that can be serviced, it has been possible to maintain an average lag time of 3 weeks, despite a considerable upsurge in the volume of work. For 1993, some measures applied to simplify operations and a streamlining of procedures shall be brought into play and shall make possible even more expeditious service.

Within the domain of the interface network, work at important building sites to be equipped with fiber-optic cable has been pursued in such a manner that, at the end of 1992, more than 60 percent of the centers were already being served via fiber-optic cable.

The tempo assumed over several years should be maintained through the end of the decade in order to keep pace with the conversion to digital technology and [state-of-the-art] switching and for ensuring a network sufficiently in consonance with the goal of guaranteeing sufficient operational security, even in the event of a major failure. In this regard, a global-level plan has been sketched out and subjected to discussion.

The number of building sites where the postal and telecommunications services are participating, coordinating on the initiative of the administrations, public services or distribution enterprises, has remained at the same level as over the last fiscal year, while the number of residences, large buildings and residential developments has continued to grow.

In the field of radio communications, efforts geared to establishing a directional radio link to Belgium, slated to become operational during 1993, have progressed.

The prototype configuration of a radio network, using near-border resources shared with the FRG, was defined in 1993, with an eye toward a 1993 startup under the designation "Commobil." It is destined to cover the domestic mobile radio communications needs of companies having a fleet of vehicles on the move.

The LUXGSM network was put into play in such a manner that it was possible to effect the first few test communications by the end of 1992, with an eye toward a commercial-level startup in 1993.

Other radio engineering services such as Semphone and ATF II continue to enjoy the favor of the consumers.

Finally, during the last quarter of 1992, the Telecommunications Division was able to begin its move to the new site [called] "Cloche d'Or" [The Golden Bell], leaving behind the divers constraints and disadvantages resulting from the level of scatter in the train station district.

Telecommunications

I. Telecommunications Infrastructure

1. Local Subscriber Networks

Some projects for expanding some of the local networks have been implemented in the following areas:

Rodange, Alzingen, Fentange, Hesperange, Bertrange, Mamer, Capellen, Dudelange, Bettembourg, Esch/Alzette, Oetrange, Moutfort, Contern, Senningen, Reckange, Heiderscheid, Reisdorf, Garnich, Schuttrange, and Feulen.

In Luxembourg and its environs, some expansion projects have been implemented in the districts of Gasperich, Siechenhof, Dommeldange, Eich and in the Kirchberg Plain.

Finally, at the request of property developers, the local network was installed in residential districts, in commercial zones, artisans' districts or in industrial sectors. Some fiber-optic links were implemented in the networks for greater Luxembourg, Gare, Belair, and Kirchberg.

At present, fiber-optic cabling is used in the local networks only to the extent that transmission needs exceed the capacities of conventional copper conductor cables. Here, it is a question of all the digital data rates exceeding 2 Mbits/sec, be it for the interconnection of computers, image transmission, etc., or that the total demand for 2 Mbit/sec and $n \times 64$ kbit/sec circuits exceeds existing capacities. It is in this context that the links cited above were planned and implemented. Since several clients needing this sort of gear are often located in the same district (Kirchberg, peripheral [commercial] activity zones, the downtown area), the formation of veritable islets of fiber-optic networks, having a mesh or loop structure offering the operational security required for the utilization of this type of gear, is at the advanced planning stage. The initial implementations are expected in 1993.

Moreover, the installation of a local fiber-optic cable link was implemented between Wecker and the industrial district of Potaaschberg. Two other links, between Bourange and Bettembourg and between Belvaux and Sanem, are in the process of being implemented, for replacing saturated primary conventional cables.

2. Interurban Networks

Within the context of interface cables between centers using fiber-optic cables exclusively, the links listed below have been brought on-line:

Luxembourg-Garnich
Luxembourg-Oetrange
Burange-Tetange
Esch II-Belvaux

For the links listed below, preliminary work, viz., excavations and the installation of pipelines, has been completed and the laying of fiber-optic cables has begun:

Consdorf-Echternach
Ettelbruck-Heiderscheidgrund

In the north of the country, work on the Diekirch-Vianden, Diekirch-Beaufort, and Heiderscheidgrund-Neidhasuen links is progressing.

3. International Networks

The Luxembourg-FRG link via a 140 MBit/sec directional radio link was augmented by a supplementary channel so that this link can continue to serve as an adjunct to the fiber-optic cable.

The installation of a new trans-Atlantic fiber-optic cable with TAT9 fully digital transmission, comprising 30 MAUO's to AT&T, 70 to Teleglobe Canada, 30 to MCI, and 30 to Sprint International.

4. Digital [Operations] Centers

The investments made during 1992 in the field of telephone communications has made it possible to pursue the program for the replacement of electromagnetic and electronic switching (old generation) with digital switching gear.

Along with the progress in replacing outdated switching gear with new generation switching equipment, it was possible to expand the availability of 2 MBit/sec interface connections to most public switching facilities.

At the end of 1992, 79 private telephone communications centers were connected to this equipment.

II. Telecommunications Services

A. Telephone Services

1. New Service Connections

At year's end, the number of primary connections increased to 206,502. Disregarding the 3,935 lines for receiving data packets, direct [channel] selection lines and service connections, which up to now have not figured in the number of primary service connections, the net increase in 1992 amounted to 10,807 units, that is, 5.64 percent.

Thus, the density of main lines reached 53 per 100 inhabitants. During 1992, the Postal and Telecommunications Services Enterprise was confronted with 17,677 requests for new service connections to the telephone network (+3.7 percent).

Despite this new record in terms of the number of requests, the number of requests pending dropped from 4,924 (at the end of 1991) to 4,101 (at the end of 1992), amounting to a 16.7-percent drop. This number at once includes requests that can be fulfilled and those in the process of being fulfilled as well as those requests that

cannot be fulfilled for technical reasons. Disregarding requests that can be fulfilled with an average lag time of three weeks, the waiting list, which includes requests that occasion technical problems, contains 2,351 requests, all told. Thanks to exceptional efforts, it was possible to reduce this figure by 25 percent, relative to the corresponding figure last year (3,153).

2. New International Telephones Rates

The Postal and Telecommunications Services authorities have made some significant reductions in rates, effective 1 March 1992, to wit:

- a 30-percent reduction in rates for telephone calls to the United States and Canada
- a more economical telephone rate zone for Australia, Hong Kong, Japan and Singapore
- reduction in rates for all other non-European countries
- the automation of 92 additional linkups, including the Azores and Madeira

3. Telephone Repair Service

In 1992, the "17" telephone repair service recorded a total of 176,482 calls, of which 34,428 required technical intervention. Of the outages reported, 78.6 percent were corrected, at the latest, within a day following report of the outage.

4. New Telephone Handsets

In response to customer demand for cordless telephones that cannot be easily monitored and which guarantee every security against fraudulent use, the gamut of full-feature telephone handsets, available for sale to consumers, was rounded out by two cordless models meeting the stipulations of the CT1 European standard.

5. "Telekaart" Service

To commemorate its sesquicentennial anniversary, the Postal and Telecommunications Services offices issued a series of three telephone calling cards, two of which evidence a commemorative design and are available for sale at PTT windows, and a third which is distributed on certain occasions.

The full complement of public telephones and card-operated telephones currently comprises some 100 units. Preparations, envisioning enhanced device compatibility, particularly in that they allow the posting of public operating instructions in a variety of languages, have been initiated.

6. International Leased Circuits

The rapid expansion of leased digital circuits continued over the year 1992.

Beginning in 1992, the acquisition of signal mixing gear shall make it possible to offer the entire spectrum of signal transmission rates, in 64 kBit/sec increments from 64 kBits/sec to 2 MBits/sec.

We note that analog circuits are gradually being replaced by digital circuits, thereby occasioning a diminution of some 9 percent during 1992.

7. 0800 Service

0800 service, making it possible to bill calls to the party being called, has continued to enjoy the success of years past. Toward the end of 1992, 874 [0800] numbers were in service. Of these, 26 were nationally recognized toll-free numbers, 750 were 0800 numbers usable in calls directed abroad, and 98 were for use when making calls from abroad. This amounts to an increase of 66 percent vis-a-vis the preceding year.

8. Serviphone

This information service, permitting telephone service subscribers to gain access to information for a fee, by means of special caller numbers, is used for the dissemination of information, from computer software distribution via modem, to current cultural event information, to entertainment programs.

9. Direct Operator Access Service

The "direct operator access service," making it possible to gain access to operators abroad by dialing a toll-free 0800 number in Luxembourg is in operation to 17 different call destinations.

Service in the reverse direction, making it possible to call a Luxembourg operator from abroad, was initiated during 1992. By year's end, this service was available from 15 countries.

10. New Emergency Numbers

Pursuant to the initiative of the European Community, the sole pan-European emergency assistance number, 112, was put into operation on 1 January 1993. This new number presently operates in tandem with 012, which latter number it could totally replace at some point in the future, once the new number has gained general acceptance.

Along with the emergency assistance number 112, another number, having as its destination the Force for Law and Order (police and gendarmerie) became operational. This is 113, which is reserved for emergency calls requiring these services.

Of course, both 112 and 113 are toll-free to the calling party.

11. Private Postal and Telecommunications Services Centers

In 1993, a network having three private digital telephone exchanges (PBXs), for the telecommunications needs of

various services of the General Directorate of Postal and Telecommunications Services, the Postal Division, and of the Telecommunications Division, was put into service.

12. Telephone Information Services

In late 1992, the Postal and Telecommunications Services authorities put into operation a system of computerized access to telephone directories, thus permitting their "016" international information operators to gain access to foreign information databases, by means of terminal displays.

Questions and answers are routed via the public data packet switching network, in the form of formatted messages, in accordance with Technical Recommendation Tph 28, drafted by the former CEPT (European Conference on Posts and Telecommunications) and later adopted by the CCITT (Consultative Committee on International Telegraph and Telephone).

From the time the service came on-line, it was possible to implement a linkup with the following countries:

Germany, Austria, Belgium, Denmark, Finland, France, Great Britain, the Netherlands, Sweden, and Switzerland.

The average turnaround time for the nearly 120,000 consultations made since the service was inaugurated is less than two seconds.

13. ISDN [Integrated Service Digital Network]

Pursuant to the demand, on the part of some users and in view of the introduction of a public ISDN service in 1993, an intermediate approach was implemented in 1993. For the subscribers in the local sector of downtown Luxembourg, access to the international ISDN network was installed in collaboration with France Telecom. At year's end, 12 clients had access to this service.

B. Long-range Telecommunications and Data Services

1. Luxpac

In 1992, the extensions to the Luxpac network improved the quality of the service offered to the users. New features were introduced, for example, gates for assisting in error detection and correction routines.

A direct X75 link with Spain was established. The data rate for all international lines was set at 64 kBits/sec. For the primary links, the number of lines was increased and the X75 multi-link protocol, which reduces considerably the effects of line perturbations, was installed.

2. Telex

Along with the telephone rates, telex rates over links with non-European countries were reduced on 1 March 1992. However, the drop in subscribers and in the number of minutes charged was discernible in 1992. This is due, above all, to the introduction of new features and the

rapid growth of facsimile services which, in the long term, shall lead to the total elimination of telex services.

3. Videotex

The efforts of the Videotex 200 group, which latter body is made up of representatives of the Postal and Telecommunications Services bureaus, of the Videotex Association in Luxembourg, of the Ministry of Communications, and of the Ministry of State have managed to reach a consensus with regard to the technical structure and the overall philosophy of the videotex system of the future. The Postal and Telecommunications Services authorities have developed and presented a prototype of this new system. International videotex links have been expanded and adapted to the new international environment.

4. Electronic Message Forwarding and Directory Service (X400 and X500)

Preliminary efforts, for permitting the Postal and Telecommunications Services authorities to participate in an X500 research project, within the context of the CCE's (EC Commission's) Value II program, in conjunction with the RESTENA (National Education Telecommunications Network) project team and other partners from the private and public sectors, were integrated in 1992. X500 represents a collection of standards defining the implementation of international electronic directories in conjunction with electronic message distribution system (X400 standards).

5. Public-access Network for Alarm Transmission

The efforts of a working group made up of representatives of the Ministry of the Treasury, the Ministry of State, the Forces for Law and Order, and the Postal and Telecommunications Services authorities have managed to reach a consensus with regard to the status of a future public alarm network which would eventually replace the present Postal and Telecommunications Services network (RPTA). The Center for Telecommunications and Public Alarms, attached to the Ministry of State, has inaugurated a study to define the needs of future users of the new network.

6. Domestic Network for Alarm Transmission

Over the last few years, large-scale efforts have been undertaken with the aim of improving the availability and security of telecommunications services. In this context, a system for transmitting alarms generated by different telecommunications equipment as well as by auxiliary installations or surveillance equipment was put into operation in July of 1992. All alarms are forwarded to a central dispatch area that is manned around the clock and from which the necessary intervention is inaugurated in the event of an incident.

7. European Multi-protocol Service (EMPS)

The installation of EMPS on a European scale in 1992 is the follow-on to the Cosine IXI (Cooperation for Open System Interconnection Networking in Europe - International X25 Infrastructure) pilot network managed by the Associated European Research Networks (RADE), under the aegis of the European Commission.

Management of the EMPS was entrusted to the PTT Telecom of the Netherlands, which latter body subcontracted the operation of the Luxembourg EMPS node to the Postal and Telecommunications Services bureaus. Some public and private research centers are connected to that node by means of digital links rated at 64 kBits/sec. The node is tied into the EMP topology by means of 64 kBit/sec links connected to the nodes in Geneva and Brussels, and by a 64 kBit/sec X75 link to the Luxpac network.

C. Radio Engineering Services

In 1991, preparatory efforts were begun for putting into operation a new mobile digital telephone network called LUXGSM. The order to provide and install the network went forth at year's end. [The network] is slated to go into operation in mid-1993.

The radio electronics services, Semaphore and radiotelephone, are posting continual progress.

1. Radiotelephone

System 1 public ground-based mobile radio telephone service, in operation since 17 February 1975, currently comprises 5 channels divided between two base stations. At year's end, 174 radiotelephone links were in operation.

System 2 public ground-based mobile radiotelephone service, open to the public on 12 November 1985, currently comprises 58 channels distributed among 7 base stations. At year's end, 946 radiotelephone links were in operation.

2. Semaphore

The public radio calling service, called Semaphore, was opened to the public on 12 November 1981. This service, covering the Benelux countries, made it possible to service only those receivers programmed to eight codes.

This service was replaced by a new Semaphore service which has been in operation since 7 June 1989 and, likewise, provides coverage of the Benelux countries.

The Semaphore service permits the use of receivers keyed to four codes, receivers with digital displays, and receivers with alphanumeric displays. As of 31 December 1992, 5,786 receivers were in operation. Of those, 2,078 were installed by the government.

3. Luxpaging

The Luxpaging service, introduced in tandem with the new Semaphore service, uses alphanumeric receivers with an 80-character reception capacity, exclusively. At present, this service's zone of coverage encompasses the city of Luxembourg and its environs.

This service numbers 134 subscribers.

4. Shielding

The service for shielding premises against radio interference was saddled with 135 complaints.

In 45 of the cases, it was a matter of interference from television transmissions. On 18 occasions, audio emanation from radio broadcasts were to blame. Low-frequency high-fidelity equipment accounted for 7 cases, video equipment for 15, private radio network emanations for 10 instances, and, in 6 cases, television broadcast networks were found to be at fault.

The perturbations were occasioned particularly by 22 MHz transmitters, unauthorized radio broadcasting stations, defective or improperly connected receiving antennas, heating system thermostats, unregulated or defective television sets, and appliances not equipped with anti-interference gear.

In 34 cases, the problems have yet to be definitively controlled.

During an in-depth examination of non-public radio stations, 62 reports having to do with reception were filed.

D. Documentation and Design Service

This service was faced with 2,042 requests for information regarding the layout of underground telephone cables. The number of hours dedicated to troubleshooting were 7,017. Some plans and diagrams for the implementation of 1,930 new extension projects were drafted. The number of topographical surveys carried out while new underground cables were being installed increased to 2,704.

E. Electrical Workshop

The electrical workshop has carried out numerous works and service calls during 1992. We cite the following:

- the reconditioning of 1,698 telephone handsets
- the reconditioning of 134 different terminals
- the installation of 9 pay telephone booths
- the installation of 6 temporary telephone booths
- the establishment of the press center for the Tour de France
- replacement of 47 telephone handsets in public telephone booths

- 1,927 service calls for telephone booth outages
- the installation, maintenance and repair of electrical and telephone equipment in the building of the Telecommunications Division (125 service calls)
- the remodeling of a post office
- maintenance and repair of alarm network equipment (65 service calls)
- installation and deployment of 53 line concentrators
- 57 occasions of the repair and transfer of telefax gear
- repair of public telephone booths at post offices (141 service calls)
- the manufacture of some 130 different printed circuits for meeting the needs of the various services
- repair of information microsystem materiel (42 service calls)
- development and manufacture of 9 electronic equipment complexes

Logistics

I. Regulation

1. Regulation of Post Offices

No significant changes, from the standpoint of regulation, took place during 1992, since the acts stemming from the XX Congress of the Global Postal Union, in Washington, D.C., and a new general regulation covering the postal service went into effect last year.

From the European side, the scenario is marked by the publication of the Green Book of the EC Commission, regarding the development of a single postal services market.

The Enterprise shares in the global approach of the Commission which, by means of balanced liberalization and harmonization, intends to guarantee EC citizens and organizations a reliable, high-quality, global postal service.

The Enterprise is always available, time and time again, even before some interlocutors who vary dramatically on the topic of certain propositions in the cited book that could occasion serious economic consequences for the Enterprise. Moreover, a liberalization of intra-EC and international mail would bring with it a skimming of the mail exchanged and would reduce the volume of mail to be distributed, where the rates are the highest.

Last September, the European Conference of Postal and Telecommunications Services (CEPT) administrations, divided into two sections—postal services and telecommunications—adapted its structure to the requirements of the EC. Thus, the organization does not encompass

more than the administrative authorities of the member countries and has become a regulatory body.

For their part, the postal service operators, including the Postal and Telecommunications Services Enterprise, have come to make up an independent and specialized association. It is within this renewed framework that the postal service operators are called upon to cooperate with the [provisions of the] Green Book and in its perpetuation.

2. Telecommunications Regulation

On 17 February 1992, two regulations, emanating from the echelon of the Grand Duke and concerning public telex and teletex services, went into effect.

These regulations take into account the Grand Duke's regulation of 3 August 1990, establishing the general provisions applicable to public telecommunications services, while respecting the structure adapted by the other interconnected public services.

In terms of the schedule of rates, the regulation governing telex service brought with it a noticeable drop in rates for international communications.

The Grand Duke's regulation of 17 February 1992, amending his regulation of 8 October 1990 concerning public telephone service, is accompanied by a significant reduction in rates for international communications and inaugurates the automation of telephone service over 92 supplementary links.

II. Personnel

A. Employee Management

For 1992, the Government released no new authorization for new hiring, so that the total manpower strength of the Postal and Telecommunications Services Enterprise remained constant.

Taking employment vacancies into account, during 1992, the processing of 90 new hires was initiated. During this same fiscal year, the Enterprise was obliged to register the following:

- 33 resignations
- 18 retirements
- 1 death
- 4 dismissals
- 10 changes in administration
- 36 occasions of leave-without-pay
- 5 occasions of leave-at-half-pay

On the topic of accrued leave, the situation has not improved, so that the number of hours of leave reportable for fiscal year 1993 increased to 153,717 hours for the entire personnel staff.

The 1 September 1993 effective date of the 10 August 1992 law setting up the Postal and Telecommunications Services Enterprise had significant repercussions for the

management of personnel. As of that date, all administrative proceedings involving personnel fall within the purview of the Enterprise's management committee. This change, which necessitated some significant preliminary efforts for adapting management of the personnel staff to its new circumstances, occasioned certain procedural simplifications, particularly with respect to the replacement and recruitment of personnel.

Finally, a new personnel services station, concerned with disbursements to postal workers was set up for ensuring, beginning with fiscal year 1993, the payment of salaries, allowances, wages, etc., operations heretofore ascribable to the competence of the Ministry of Public Affairs.

B. Professional Training

1. The Training of Trainees

The service has trained 35 new recruits, in the career fields of engineer-technician, technical copyist and craftsman, to take up their duties in the various services.

Thirteen participants took a course expressly designed for agent-trainees in different administrative career fields.

2. Retraining and Advanced Training Courses Held Within the Cadres of the IFA

During the year, 11 courses introducing agents in different career fields to new services and different technologies were organized.

III. Materiel and Buildings

A. Materiel

1. Equipment

The equipment complement was rounded out by the acquisition of calculating devices and electronic typewriters.

Some 100 metal mailboxes were replaced by others fashioned of fiberglass reinforced polyester.

2. Security

In 1992, the post office security program was defined in terms of the installation and improvement of security zones, this latter by means of the installation of armored doors and windows. Twenty-seven safes were replaced.

The video surveillance installations were improved and the CFM building was integrated into the video surveillance system for the buildings at the Luxembourg Train Station.

At the Postal Center and at the CFM building, additional doors, serving as fire walls, have been installed. The fire alarm system has been extended to all the buildings at the Luxembourg Train Station.

3. Customer Service

In order to permit the public to obtain stamps, outside of established business hours, some additional postage dispensers have been put into operation.

Out of concern for the continual improvement of customer service, the Postal and Telecommunications Services Enterprise has inaugurated the installation of 12 additional telephone booths, including 5 for handicapped users.

Apart from that, the post office at Roodt/Syre was equipped with an access ramp for the handicapped.

B. Buildings

The activities of the Public Buildings Service, in close collaboration with the Public Buildings Administration, are outlined as follows:

- expansion efforts at the Roodt/Syre post office
- efforts toward the construction of a building for the Telecommunications Division at Gasperich
- efforts toward cleanup and refurbishment at the Telecommunications Center at the Luxembourg Train Station
- construction of an auxiliary cable depot at the Reckange/Mess Telecommunications Center
- installation of climate control equipment at the telecommunications centers at Kirchberg, Luxembourg Train Station, downtown Luxembourg and Steinfort
- the outfitting of key stations for mobile ground-based radiotelephone service, at Hivange, Howald, Kehmen, Mondorf, Neidhausen, Redange/Attert and Wiltz
- the initiation of efforts to outfit mobile ground-based radiotelephone stations at Beaufort, Binsfeld, Burange, Diekirch, Echternach, Hamiville, Harlange Poteau, Potaaschberg, Quatre-Vents, Riesenhof, and Vianden.

IV. Data Services

Once again in 1992, efforts were actively pursued toward setting in motion and developing a data system in response to requests for new connections, cancellation of subscriber services or conversion of an installation to the telephone network. Computerized data capture from telephone directories has been modernized. However, we note that it was not possible to implement those applications as quickly as desired, due consideration being given to the fact that part of the computer services personnel in charge were obliged to concern themselves with the shift in the ongoing applications toward another version of the operating system.

The release of SAP accounting software, whose application was imposed subsequent to the change in status of

the Postal and Telecommunications Services Enterprise, requiring that business accounting be set up, turned out to be a success.

We note that the study concerning the installation of a personal computer network in the post offices was actively pursued and the startup of the first offices [equipped with PCs] is expected in late 1993. Again, it is at that juncture that connection of the CCP service to the international Eurogiro network shall take place.

The installation of individual PCs is proceeding in accordance with a sensible fiscal envelope established by the management echelon.

Early in the year, an IBM System ES 9000 replaced the timeworn computer at the Postal and Telecommunications Services Computer Center.

V. Postal Services Garage

At the end of 1992, the motor pool for the Postal and Telecommunications Services [Enterprise] was comprised of:

- cars/vans: 562 units
- trailers/rescue-emergency vehicles: 51 units
- antique vehicles: 3 units

Taking into account the 75 vehicles put into service in 1992, at the end of 1992, the motor pool numbered 613 units. One hundred eighty seven units were equipped with a 3-way catalytic converter and 57 with a diesel engine.

For fiscal year 1992, 52 units were phased out.

Throughout the year 1992, the Enterprise's vehicles logged 6,880,000 kilometers.

VI. Public Relations

In the domain of public relations, 1992 was marked by the 150th anniversary of the creation of the Postal and Telecommunications Services Administration in the Grand Duchy of Luxembourg and the change in its status, transforming it into a public Postal and Telecommunications Services Enterprise.

The activities planned for the commemoration of the anniversary provided the ideal setting for presenting the new Postal and Telecommunications Services Enterprise to the general public.

Also, on 27 August 1992, during a press conference, the program "150 Joer Post" [The Postal Service: A Sesqui-centennial] was presented to the public.

From this program, whose final phase is slated for late June 1993, we present to you in this report but the three principal thrusts that are being developed in 1992.

"Wir entdecken die Post" [[Ger., "[we are] discovering the postal service"]] is the title of a booklet specially designed for children, by instructors and specialists of

the Postal and Telecommunications Services bureaus. This booklet was distributed free of charge to pupils of the third grade of primary school, by the postal authorities and mailmen in all the country's schools.

Among the various sporting events [concomitant to] "150 Joer Post," the cycling event, "10 Stonne Velo an der Stad" [probably, "All-city 10 Stonne (likely a unit of measure) Cycling Event"], organized by the friends of the Bureau of Posts, Telephone and Telegraph (PTT), enjoyed such success that the authorities within the organization decided to stage an encore event in 1993. This event has a good chance of becoming an established event in the country's calendar of sporting events.

The presence of the Postal and Telecommunications Services Enterprise, represented by a pavilion at the Luxembourg International Fair in the autumn of 1992, marked the turning point in the year's events. At this pavilion, the Enterprise, while showing off its significant past and its role in the development of the country, certainly manifested itself as a modern, efficient and operational undertaking.

In order to introduce you to the musical competition, "Die Letzebuerger Postmarsch," the academic session, the public holidays, the historical tome, "Eis Post," etc., we refer you to the 1993 management report of the Postal and Telecommunications Services Enterprise of the Grand Duchy of Luxembourg.

1992 Revenues

1. 1992 Revenues		
82.0.16.070	Postal services: fees for correspondence and other revenues	2,007,470,197
82.0.16.071	Telecommunications services: subscriptions, fees and other revenues	5,947,405,156
82.0.38.050	Net proceeds from additional charges levied upon the issue of stamps for sale and upon postal telegrams credited to public works, groups or [other] collective entities pursuing social or cultural goals, or of national interest	3,056,936
82.0.39.030	Share of International Satellite Telecommunications Consortium (INTELSAT) revenues devolving to the Grand Duchy of Luxembourg	4,493,755
TOTAL		7,962,426,044

2. 1992 Nominal Budgetary Expenses		
22.1.11.000	Salaries for officials	2,268,296,460
22.1.11.010	Compensation, permanent party staff	152,171,389
22.1.11.020	Compensation, temporary hires	33,238,291
22.1.11.030	Salaries, laborers, permanent party staff	396,370,491
22.1.11.040	Salaries, laborers, temporary hires	39,689,560
22.1.11.130	Compensation, special services (non-restrictive credit)	4,193,923
22.1.11.131	Allowances for domestic damages [payable to] agents responsible for the security of the telecommunications network (non-restrictive credit)	6,420,472
22.1.12.000	Compensation, for third-party services (unrestrictive credit)	797,366
22.1.12.010	Travel/accommodation expenses; moving expenses	21,994,999
22.1.12.020	Expenses for vehicle use: operation, maintenance, repair (non-specific in terms of fiscal year)	19,996,521
22.1.12.021	Expenses for vehicle use: insurance and fuel (non-restrictive credit)	25,068,249
22.1.12.030	Provision of work uniforms/protective apparel	755,463
22.1.12.040	Office expenses (non-specific in terms of fiscal year)	17,885,301
22.1.12.041	Printed materials, microfilms, photographic materials, continuously numbered forms and envelopes addressed to clients of the postal check and stamp issue services, the telecommunications services revenue office, and the parcel post service; continuously numbered forms and tickets for computer operation (non-restrictive credit)	18,141,185
22.1.12.070	Setup and maintenance of computer equipment	2,349,276

2. 1992 Nominal Budgetary Expenses (Continued)

22.1.12.080	Telephone booths and call routing centers: operation, maintenance and repair costs; miscellaneous expenses (non-specific in terms of fiscal year)	27,499,223
22.1.12.081	Water, gas electricity, municipal fees, etc.; property taxes; fuels (non-restrictive credit; non-specific in terms of fiscal year)	85,499,996
22.1.12.090	Leasing of buildings and auxiliary tenant charges paid to the public administration sector (non-restrictive credit; non-specific with regard to fiscal year)	3,473,863
22.1.12.100	Leasing of buildings and auxiliary tenant charges paid to sectors other than the public administration sector (non-restrictive credit; non-specific in terms of fiscal year)	27,547,479
22.1.12.110	Legal fees (non-restrictive credit; non-specific in terms of fiscal year)	786,917
22.1.12.120	Fees for experts and for studies (non-restrictive credit; non-specific in terms of fiscal year)	23,850,905
22.1.12.130	Publication fees (non-restrictive credit)	38,312,737
22.1.12.140	Expenses for publicizing stamps/postal services subscriptions	979,139
22.1.12.141	Marketing of Postal and Telecommunications Services products (non-specific in terms of fiscal year)	—
22.1.12.170	Acquisition and maintenance of a small complement of tools and special equipment of low cost, for the services of the telecommunications division	1,908,289
22.1.12.180	Acquisition and maintenance of teaching materials	143,813
22.1.12.190	Colloquia, seminars, study phases and days: organizational and participation fees	1,489,706
22.1.12.300	The manufacture of stamps/postage and postal cards (non-restrictive credit; non-specific in terms of fiscal year)	25,436,918
22.1.12.301	Maintenance of airborne and underground telecommunications network (non-specific in terms of fiscal year)	27,497,823
22.1.12.302	Maintenance and repair of automatic banknote distribution gear (postomat); the provision of magnetic cards; auxiliary fees (non-specific in terms of fiscal year)	6,662,116
22.1.12.303	Postal service materiel and maintenance of postal equipment	4,994,398
22.1.12.304	Maintenance and repair of the equipment and spare parts for postal mechanization (non-specific in terms of fiscal year)	2,699,931
22.1.12.305	Maintenance, checkout and repair of mechanical sorting equipment (non-restrictive credit; non-specific in terms of fiscal year)	1,687,024
22.1.12.306	Expenses for the transport of funds (non-restrictive credit)	3,670,212
22.1.12.307	Indemnities payable to railways and other transportation enterprises (non-restrictive credit)	1,526,499
22.1.12.308	Maintenance of telecommunications equipment (switching, transmission and power supply equipment; terminal and radio engineering equipment; alarm and metering equipment); (non-specific in terms of fiscal year and not transferable to other items)	45,299,906
22.1.12.309	Maintenance and repair of post office air conditioning gear (non-restrictive credit)	10,748,239
22.1.12.310	Fee for building security monitoring (non-restrictive credit)	2,494,679
22.1.12.311	Manufacture of telephone calling cards (non-restrictive credit)	4,802,299
22.1.34.040	Damages (non-restrictive credit; non-specific in terms of fiscal year)	29,586
22.1.72.010	Work for the repair, conversion, outfitting, enlarging and equipping of postal buildings (non-specific in terms of fiscal year)	22,499,855
22.1.72.011	Heating equipment and thermal insulation: construction and modification (non-specific in terms of fiscal year)	1,997,862

2. 1992 Nominal Budgetary Expenses (Continued)

22.1.74.000	Acquisition of motor vehicles	31,070,182
22.1.74.010	Acquisition of office machines	1,195,658
22.1.74.050	Acquisition of computer equipment	2,681,763
22.1.74.080	Acquisition of office and other movable property	4,150,000
22.1.74.300	Acquisition of equipment items for the maintenance of buildings, the printing shop, the photographic studios, the snack bar, the postage distribution office, and the postal museum	1,899,781
22.1.74.301	Acquisition of measurement instruments and other equipment for the services of the telecommunications division (non-specific in terms of fiscal year)	3,766,074
22.1.74.302	Acquisition of pay telephone booths	1,499,370
22.1.74.303	Acquisition of postage distribution machines	1,470,453
22.1.74.304	Acquisition of equipment items for the postal service, and for the mechanical, electrical and electronic installations of the post offices	4,539,724
22.1.74.305	Acquisition of mailboxes, with an eye toward replacement of those currently in service	1,932,173
22.1.74.306	Replacement of transformers containing printed circuit boards (PCBs): acquisition, installation and hookup of new non-flammable transformers void of chlorinated liquids; replacement of lighting fixtures and other equipment having capacitors with PCBs (non-specific in terms of fiscal year)	2,992,175
TOTAL		3,445,277,527

Table 16. Radio Communications: Non-Public Radio Engineering Stations

Table 16. Radio Communications: Non-public Radio Engineering Stations

	1988	1989	1990	1991	1992
Terrestrial* stations	85	130	130	166	4
Audio radio broadcast stations	9	9	9	9	36
Televised radio broadcast stations	3	3	3	6	6
Television relay stations	1	1	1		
Airborne stations	25	25	25	25	25
Aircraft on-board stations	93	70	85	112	115
Radio beacon stations	9	9	9	9	9
Marker beacon stations	2	2	2	2	2
"Ham" radio stations	385	392	398	424	441
Radio direction-finding stations	2	2	2	2	1
Fixed radio ground stations	18	25	25	25	66
Ground-based stations	594	609	631	639	676
Mobile ground-based stations	3918	4039	4299	4369	4458
Citizens' band stations	483	556	684	793	867
Coastal radio stations	2	2	2	2	2
Shipboard radio stations	116	129	134	218	246
Remote control units for model aircraft	535	545	569	593	605
Total	6280	6548	7040	7396	7559

*including satellite telecast receiving stations for which authorization had been granted prior to 1 September 1992. After that date, those stations are no longer subject to authorization.

ISDN (Integrated Services Digital Network)

EURIE 93: The European ISDN Event

Is ISDN the digital network of the future? The preliminary conditions seem to be in evidence: the standardization of ISDN on the European plane, called EURO-ISDN, and European coordination for its introduction. It was with those considerations in mind that European service carriers signed the Memorandum of Understanding (MOU) in May of 1989, committing them to the implementation of a European ISDN service in 1993.

EURIE 93, to run from 14 through 16 December 1993, is the event that shows not merely that EURO-ISDN is now a reality on the public networks level, but, besides that, that a multitude of EURO-ISDN products and services is already available. Twenty European countries and 64 participants are involved in EURIE-93 at more than 70 sites. In Luxembourg, the event is organized by the Postal and Telecommunications Services Enterprise of Luxembourg, in collaboration with ACOTEC-AEG of Luxembourg, Alcatel-Bell Business Systems, Comptoir Electrotechnique, COMTECH, CTTL Ericsson, IBM of Luxembourg, Olivetti, Philips of Luxembourg, SIEMENS, Telenorma, Telephonie, and Telindus.

Integrated Services Digital Network (ISDN)

ISDN combines the idea of digitizing the network up to the consumer end and using the same network for all the telecommunications services. Thus, ISDN represents a global telecommunications network providing high-speed transmission and a standardized user interface.

ISDN represents an improvement over existing services (better quality and facilities for telephone [communications], better resolution and a higher transmission speed for telefax, etc.) and opens up an entire universe for new applications—videotelephony, LAN-to-LAN connections, on-demand pass band allocation, high-quality audio transmission, photofax, etc.

The public ISDN network with all its attendant services (bearer services, teleservices, and supplementary services) constitutes the basis for an entire series of applications that can be effected using terminal equipment.

Two types of connection are available for access to the public ISDN network: basic rate access (BRA) consisting of two channels at a rate of 64 kBits/sec and a 16 kBits/sec signaling channel (2B + D), and primary rate access (PRA) consisting of 30 channels with a rate of 64 kBits/sec and a signaling channel also at a rate of 64 kBits/sec. Both connection modes use the standardized E-DSS 1 protocol.

The compatibility between the existing telephone network and the new ISDN network is guaranteed, so long as the persons communicating wish to use the same service, i.e., telephone service.

The Introduction of ISDN in Luxembourg

The pre-commercial introduction of ISDN service, that is, the inauguration of the testing phase, is slated for March 1994. During this test phase, only national-level traffic will be possible.

The commercial-level introduction [of the service] is slated for May 1994. ISDN service shall be offered on a nationwide basis. Rates have not, as yet, been definitively set.

Direct Link Communications

Leased Lines

To have the necessary information at one's disposal when one needs it is an advantage of size in an era when one must be armed to make decisions rapidly. This is why modern enterprises depend upon a continuously available communications network, particularly a sure and reliable one. These are some needs to which the Postal and Telecommunications Administration is responding via a special service—leased lines.

This service permits you to lease fixed, point-to-point telecommunications lines for your telecommunications traffic.

'Round-the-clock Service...

Leased lines offer you numerous advantages:

- they are available to you 24 hours a day
- links are very quickly established
- large quantities of data can be easily transmitted

Directly Hooked Up to the World

The possible applications of leased lines are numerous:

- telephone calls between your corporate headquarters and its branch offices —communication via telex, telecopier, and electronic mail
- data exchange (bulk data transfer/real-time computer connections)
- transmission of radio broadcasts and telecasts
- alarm transmission

Categories of Leased Lines

- Analog leased lines offer two levels of quality: nominal quality (CCITT M 1040) and special quality (CCITT M 1020).
- Digital leased lines for telegraphy having rates of 50, 100, and 200 bits/sec are planned.
- Compared to analog lines, leased digital lines offer the advantage of better transmission quality and very high speed. They make it possible to transmit data at rates

of 64 kBits/sec or 2 MBits/sec, and eventually $n \times 64$ kBits/sec, where n ranges from 1 to 30.

—Leased lines for the transmission of audio radio signals are offered with normal telephone tone quality at 3.4 kHz (CCITT M 1040), musical tone quality with a 7 kHz pass band (CCITT M 1020), or with musical tone quality or stereophonic musical tone quality with a 15 kHz pass band (CCITT M 1020).

On the one hand, you may choose the leased line capacity that you require; on the other, you may select the type of information that you wish to transmit:

- voice communications
- telegraphic communications
- data transmission
- radio signal transmission

—alarm signal transmission, etc.

Subscription Requests and Rates

The request for a subscription is tendered by means of a special form available at any post office. The form must be signed by one or both of the individuals or corporate entities linking up their remote facilities via the leased line requested.

For international leased lines, the subscription request must be signed by the individual or corporate entity whose terminal is on Luxembourg territory. The monthly leasing fee charged in Luxembourg is collectable from the Luxembourg user party. The Postal and Telecommunications Services Administration remains at your disposal for any additional information. Be so good as to call 4991-422 (analog lines) or [4991]-722 (digital lines) or 4765-219 (international lines).

Installation and Service Initiation

Installation and Service Initiation	
Installation and service initiation fee, regular subscription, one leased digital telecommunications line usable for telegraph and analog communications, 2-line access	5,000-
One leased digital telecommunications line usable for telegraph and analog communications, 4-line access	10,000-
One leased digital telecommunications line, high-speed transmission rate up to 64 kBits/sec, 4-line access	30,000-
One leased digital telecommunications line, high-speed transmission rate up to 2 MBits/sec, 4-line access	120,000-

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